

The Nutrition Web System and Gold Card Scanner Project

A Replication Manual for AAA's and Nutrition Service Providers

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Presented By:

Aging and Disability Services

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I. Introduction

In an effort to improve data quality, track outcomes and reduce paperwork, Aging & Disability Services (ADS), the Seattle-King County AAA, has pilot tested bar code scanner technology and a web based data system to track meal and health promotion activities at nutrition sites. Washington State Aging & Adult Services provided \$155,000 for equipment and the development phase of the project.

We've experienced great success with the pilot and are in the process of expanding it to all 50 of our congregate nutrition sites. We've also made some mistakes and learned many things along the way. This manual represents both our best practices and some things we might have done differently.

ADS has created this manual in order to share what we've learned with other AAA's and Nutrition Service Providers. Whether you are interested in replicating the entire project or in adapting some of the features for your own systems, we hope that you find the information useful.

The manual presents several possible implementation models -- the ADS system as we've designed it, and variations of our system that may better meet your needs. Our goal is to provide information that can help you:

- Determine whether or not your program might benefit from using scanner technology.
- Understand the available technology and equipment.
- Develop a plan for rolling out a new system.
- Evaluate your project.

II. Project Overview

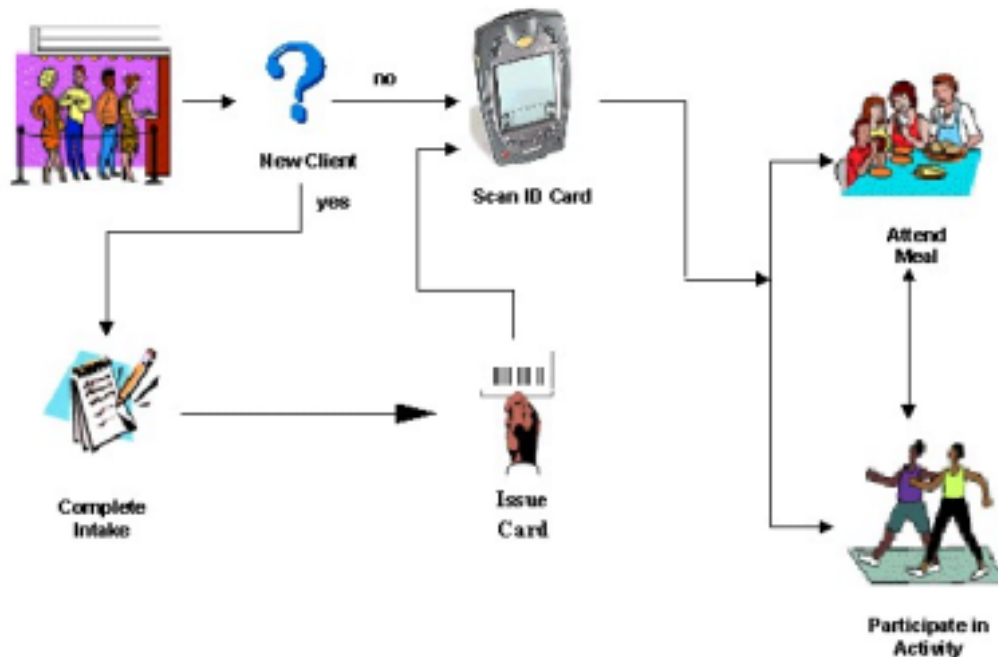
The Nutrition Web & Gold Card Scanner System enables staff at each nutrition site to easily track meals and related activities by participant. By gathering the data electronically, the system allows staff at both ADS and the nutrition sites to immediately view reports, generate invoices, and measure progress on outcomes, particularly the frequency of attendance at meals and health promotion activities.

How it Works

Program staff and/or volunteers issue a Gold Card to each participant. On the back of the Gold Card is a barcode that identifies the card with a particular person. Using a hand held scanner similar to a Palm Pilot, a program volunteer scans the barcode as participants arrive at the site for meals or other activities.

After collecting meal and activity data for the day, program staff upload the data via a modem to an internet database hosted by ADS. Staff may then log into the database to view a report summarizing the meals and activities for that day, or for any specified period. Staff also use the database to add or update participant records including nutritional risk and demographic data, to generate invoices for services provided, and to monitor progress on desired outcomes.

Scanning Process



The Gold Card

The Gold Card is the result of a partnership between the City of Seattle, King County, and the Healthy Aging Partnership. In an effort to make the card more useful and thus more desirable, the three partners agreed to have one card that would serve a variety of purposes.

Current functions of the Gold Card include:

- *Discount Card.* Special Savings for Seniors is a directory of businesses throughout King County that offer discounts to seniors with a Gold Card.
- *Nutrition Card.* The Gold Card is accepted at all ADS funded congregate meal sites. Participants complete one intake form, and can use the card at all participating sites.
- *Library Card.* Gold Card holders may use the card to check out materials from any Seattle Public Library branch.

- *Information & Assistance Card.* The toll-free number on the card will connect seniors to information on services and programs for older adults in King County.

The Gold Card partners continue to seek expanded uses of the card to better serve King County's seniors.

Privacy and Security

ADS is committed to providing a secure data system and protecting the privacy of our clients.

- Access to the Nutrition Web System is limited to designated users.
- External users must enter through the City of Seattle's firewall and present a Log-In ID and password.
- All data is encrypted when it is transmitted over the internet
- User training includes guidelines for protecting client records and database security.
- Users have access to client information only for people served by their agency.

III. Is scanning right for you?

Scanning barcodes is a simple way of recording data. Rather than recording information on paper and then re-entering it into a database, scanners allow you to record and transfer data in a fraction of the time. However, implementing a new system of any kind takes time and energy. Implementing a scanner system may represent a significant financial investment. Can you afford to make the leap? Here are some things to consider if you are trying to decide whether or not its worth the cost:

Assess your need for quality data:

- Are you currently getting the type of data that you need (e.g., service utilization by client, frequency of attendance, unduplicated client count)?
- Is the data reliable?
- How difficult is it to obtain (i.e., weeks, months, never)?
- How difficult is it to maintain?
- How do you use the data that you receive? Would you do anything differently if you had better or different data?

Assess the time spent using the data:

- How much time do providers and AAA staff spend compiling data and reports?
- Does this seem reasonable – is it time well spent based on the output?

Inventory your assets:

- Do you have someone who can assume the role of project manager to spearhead the change?
- Do you have dedicated IT (Information Technology) staff, or staff who are willing to learn?
- Do you have a site or location that would be a good candidate for piloting a new system? Are the staff and participants there relatively positive, flexible and receptive to new ideas?
- Do you have money to purchase new equipment or the time to pursue grants to fund a new project?
- Are there other potential uses for the system – other projects that might benefit from scanning? Would they be willing to share in the costs?
- What non-technical approaches can we take to improve both data accuracy and staff efficiencies?

There are no right or wrong answers, nor are there any magic formulas to help you decide whether or not to pursue scanner technology. Define the problem and find an appropriate solution -- one that best fits both your desired goals and available resources.

ADS funds eight non-profit agencies to provide congregate meals at 50 sites in King County. Scanning made sense to us because:

- It fulfills NAPIS requirement of reporting meals by client.
- Outcome measures such as frequency of attendance or participation in meals and nutrition related activities are easily tracked.
- Reports and invoices are generated automatically. Realized tremendous time savings for both ADS and provider agencies.
- Immediate access to data. No lag time between the reports and time in which services were provided. Easy for contract monitors and Agency staff to identify trends such as drop or increase in attendance.
- True unduplicated client count across sites.
- Easier for clients who attend more than one site. Using one card for all meal sites, the client needs to complete an intake form once only rather than each time he/she visits a new site.

IV. Nuts & Bolts: Equipment & Software

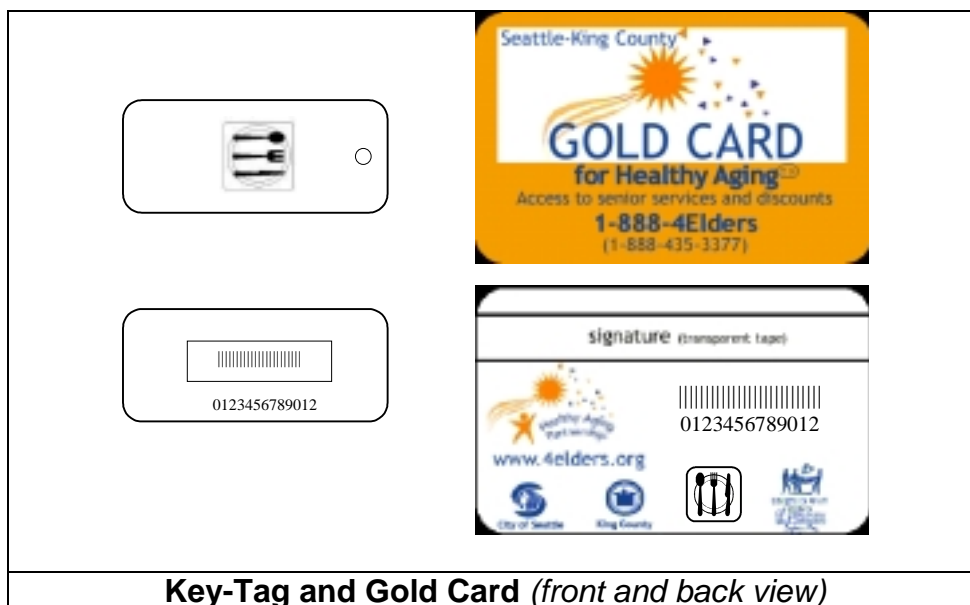
This section describes the equipment and functional elements used by the Nutrition Web System and Gold Card Scanner Project. Included are database specifications, equipment models, and selection criteria. ADS has compiled all of this information in an effort to assist other AAA's and nutrition providers implement their own systems.

Our system consists of the following elements:

- Barcode Card
- Scanner
- Database

The Barcode Card

Participants at the nutrition sites receive both a standard sized card, like a visa card, and a key tag with identical barcodes printed on the back. The key tag, similar to those used by grocery store chains, attaches to a participant's key ring. Many participants prefer to use the key tag finding it both more convenient and less likely to get lost than the standard sized card.



- Both the key tag and the Gold Card have a barcode on the back. We chose to use the barcode font Codabar in order to comply with the type of barcode used by the Seattle Public Library.
- Card and key tag are laminated to ensure that the barcode doesn't fade.
- Image of a place setting on the card indicates that the card-holder has registered for the nutrition program.
- Card identifies partners in the Gold Card Project: United Way, City of Seattle, King County, Healthy Aging Partnership.
- Numbering sequence complies with those used by other partners.

ADS experienced many trials and errors in creating a card. We used several different vendors, and printed some cards internally. Based on our experiences, good and bad, here are some items to consider when developing a card for your program:

- *Start small.* If just beginning to use cards, start with the minimum amount needed to get you going. You may need to make changes later.
- *Use existing systems.* If your participants already have a card that they use for other programs, placing a barcode label on the card could be an easy and cost effective option.
- *Shop around.* If outsourcing card production, find a reputable vendor. Check references and quality of work.
- *Make it last.* Cards get banged up in purses, scratched by keys and may even endure a trip through the washing machine. If the bar code is scratched or faded, the scanner may not be able to read it. Laminate your cards, or make sure they are built to take a beating.
- *Take the easy road.* Find a vendor who can incorporate the card, the key-tag and the intake form into one piece of paper. The participant fills out the intake form and then peels off the card and key tag. Staff receives a completed intake form with pre-printed participant ID number ready for data entry. It may cost more, but the savings in time and potential headaches will be great.

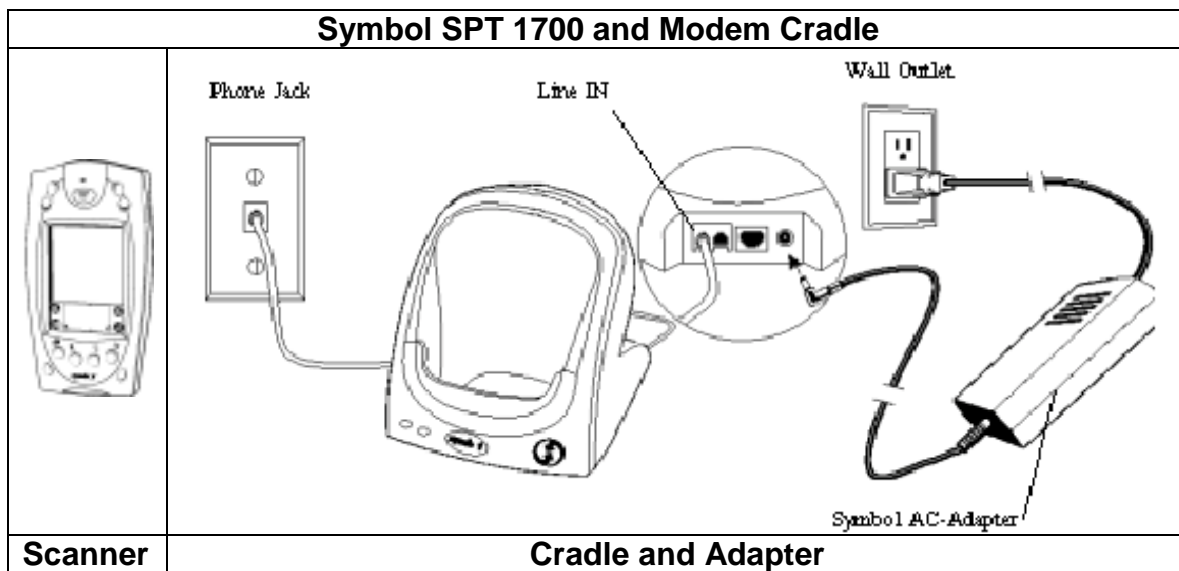
The Scanner

ADS staff researched options for scanners and chose to purchase the Symbol SPT 1700 with Palm OS®, modem cradle and AC adapter. The Palm OS® provides a visual display similar to Windows. The modem cradle uploads the data and recharges the battery and can be plugged into any analog phone line. ADS opted to purchase a two-year extended warranty package that includes 24-hour turnaround for repairs and/or replacement and 4-hour response telephone support Monday through Saturday. The stand is available through Table Manners, a manufacturer of table-top photographic equipment, www.tmanners.com.

Complete specifications for the SPT 1700 can be found at Symbol's web site: www.symbol.com. Symbol's web site also includes a helpful guide, "Bar Coding for Beginners."

ADS purchased the scanners in Spring of 2000. The following prices included a bulk discount based on purchase of 70 scanners:

Item	Cost
Scanner (SP1700)	\$601
Modem cradle	\$195
Power supply	\$33
Power cord	\$4
Warranty	\$90
Scanner stand	\$88
Total Cost Per Site	\$1,011.00



Scanner Selection Criteria:

- *Easy to Use.* Some users, both staff and participants, may be intimidated by new technology. Complicated devices and procedures may be especially difficult to implement in nutrition sites that are run by frail and elderly volunteers. Select a device that is simple to use and includes the minimum functionality required. Increased functionality is worthless if users can't figure it out.
- *Cost Effective.* Barcode scanners have been around for over 40 years. The bar codes are easy to produce, and much less expensive in terms of scanning equipment than other options such as magnetic stripes. The most efficient scanning method is a scanner that emits a laser beam onto the barcode and internally translates the barcode into a number sequence. The number sequence is then stored into the memory of the scanning device.
- *Rugged and Durable.* Scanners travel daily from the main office, to the meal site, to a volunteer's home. They will be bumped, dropped and banged. The model we chose is heavier and more expensive than a typical Palm Pilot, but also more durable.
- *Stand Alone.* Many scanner modes require an attachment to a pc or a laptop. As many nutrition sites don't have access to equipment, we opted for a model that didn't require a pc connection. The only requirement is an analog phone line to upload the data and an electric outlet to recharge the battery.
- *Visual Display.* We opted for the Palm OS because of the Windows type of environment. Symbol was the first scanner at the time we were researching to include this feature. This type of technology has some nice features for users and is very flexible in terms of programming, but is more expensive.
- *Option to use scanner as hands-free or hand-held.* After observing elderly program volunteers attempt to manipulate the scanner by hand, we realized that a stand would be necessary for most users. While most sites do prefer a

stand, we still want sites to have a choice in determining what method best suits their needs.

- *Continuous and periodic scanning.* ADS required both options. Some sites have a staff person available at the scanning location who can turn the scanner on and off as participants arrive. Other sites use a self-scan approach. The scanner is set to scan continuously, allowing participants to scan their own cards as they arrive.
- *Real Time Data.* Not every meal site has access to a computer. We chose a model that could transmit data via a modem allowing off site staff real time access to the data.
- *Wireless.* Scanners have a built in modem that automatically sends data to the source with the press of a button regardless of location. No tripping over wires, no worries about finding an analog phone line – these can be hard to find in newer non-residential buildings. Unfortunately for ADS, the wireless products were not available when we began our project. If we were starting it all over again, we'd look for a scanner with a wireless connection.

The Database

The Nutrition Web System is a web application written in SQL Server 7.0. ADS chose to implement a web-based application instead of a local application. Some of our considerations included:

- Easy to implement updates and changes to the system
- Ability to get real time data
- Enable users to log in from any location with internet access

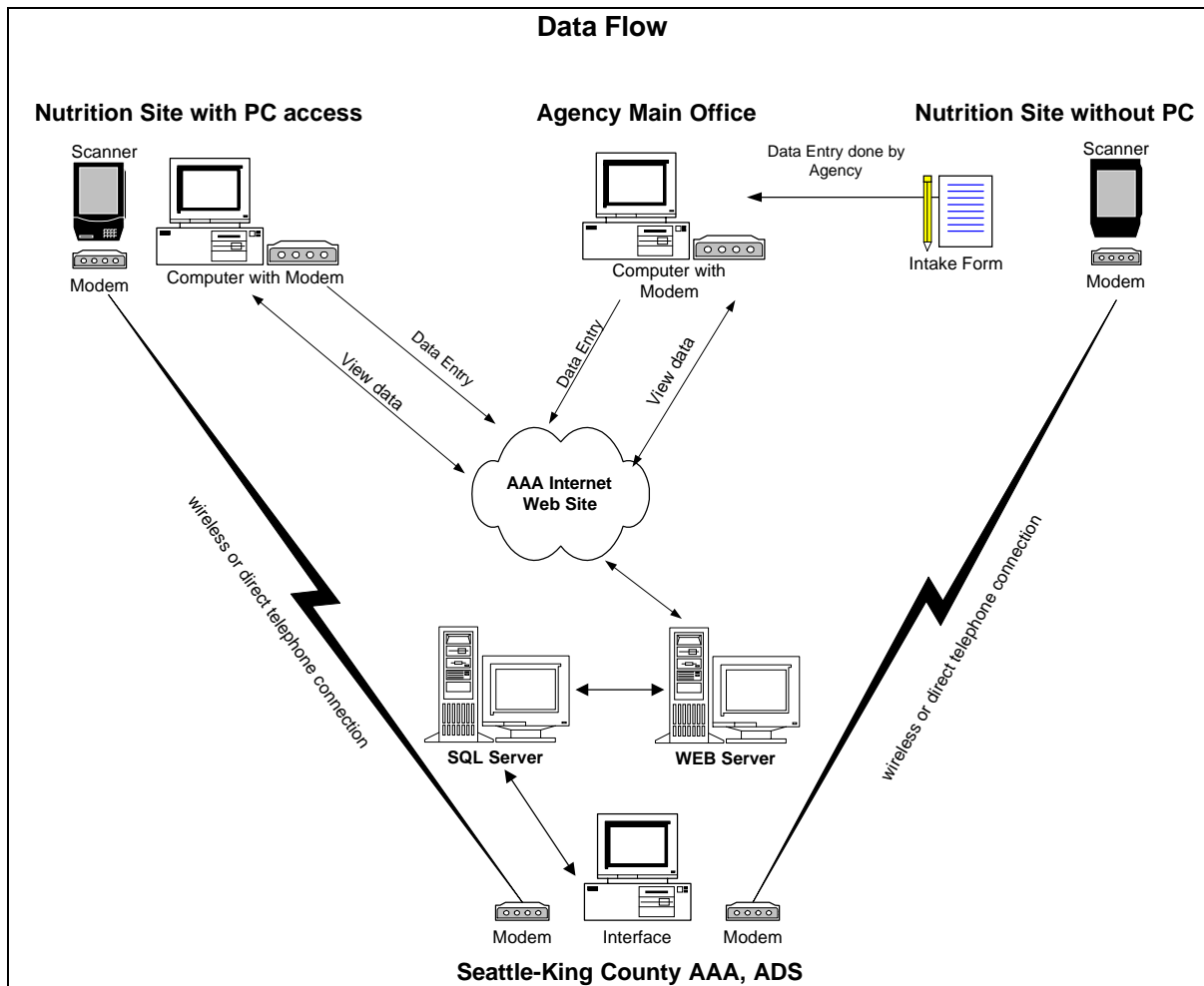
The Nutrition Web System includes the following elements:

- Database Back-End
 - ✓ SQL Server 7.0 running on Windows NT 4 Server
- Web Front-End
 - ✓ Contains ASP, JavaScript, Visual Basic Script, HTML
 - ✓ Run on IIS, Windows NT 4
- Interface Between Scanner and Back-End
 - ✓ Visual Basic 6.0 on Windows NT 4 server or workstation.
- Scanner programs
 - ✓ A front-end application (what the user sees). ADS uses Satellite Form from Puma Technologies. Visual Basic for the scanner.
 - ✓ Back-up software. ADS uses TRG Backup software for backing up data to flash ROM. This backs up data to non-volatile memory, similar to a hard drive.

Web Application System Requirements:

- An Internet server that links to central database. Ideally, the host server would have a T1 connection.
- Dedicated computer with modem to receive data from scanners.

- Programmer or developer to create and modify the source code as needed. Requires knowledge of programming languages, html code, java script.
- Recommended Back-up Systems.
 - ✓ Database backend: ADS recommends running a nightly back up to tape drive.
 - ✓ Scanner interface: ADS runs the application on dual pc's. This allows continuous uploading access in event that one computer crashes.



Making Your Selection

The specific elements discussed in this section are those that ADS chose to utilize. AAA's and nutrition providers who would like to implement a scanning system are welcome to replicate our program, or combine some of the elements that we've chosen with their own. For example, match our database with your own scanner. Use your own database with our scanner. Develop it all from

scratch. Technology changes so rapidly that you will probably have more and better choices from which to base your decision.

The ADS Nutrition Web System is available at no cost to any AAA's or nutrition providers who are interested. We will post a copy to our web site or email upon request: www.cityofseattle.net/hsd/1001/ads.htm

Before making expensive decisions on equipment and databases, find out what will work best for your programs through site visits and process analysis. The results may show that a low-tech solution would meet your needs. For example, some sites may prefer to scan barcodes from a client list rather than purchasing and distributing cards to participants. Section VI, Putting It All Together: The Implementation Process, provides more detail on site analysis and assessment.

V. Putting it All Together: The Implementation Process

You've selected the database, the equipment and decided on a method for scanning. Successfully rolling it all out to users requires a good plan. This section describes some of the methods and processes which ADS employs when implementing the Gold Card and Nutrition Web System at nutrition sites. With a few exceptions, many of the ideas discussed can be used regardless of the type of system you choose to implement.

Before beginning the implementation process, provider agencies signed an Interagency Agreement. ADS developed this agreement in order to specify the project, the implementation processes, and the responsibilities of both ADS and the Provider Agencies. The document establishes the commitment of both ADS and the Agency to ensure successful implementation of the project.

ADS addresses the following processes when implementing a new site.

- Site Assessment
- Implementation Plan
- Training
- Roll-out
- Follow-up

Site Assessment

Every site has its own unique culture and set of processes. To successfully introduce change to a site, an understanding of how that site operates is critical. Visit the site to meet the people who work and eat there. Attend the meal program. The outcomes of the site assessment are to:

- Identify key person(s) at the site to administer the Project.
- Establish trust, respond to concerns and work on solutions for questions raised.
- Review personnel, physical setting, and existing equipment in each implementation site to decide whether the current setting, equipment, and resources are adequate for implementation. If not, establish steps to eliminate obstacles. Evaluate how the scanner process can be tailored to the site. If the Agency/site is not ready for implementation, work with the Agency to deal with their concerns/obstacles until they are ready to start.
- Demonstrate how to use the equipment including scanner, cradle, telephone line, etc. Bring sample scanner cards and key-tags, explain the usage.
- Show the site staff/volunteer how to use web site including on-line training materials.

Through observation and asking questions, document the site's current processes for the following:

- Identifying new clients.
- Storing and maintaining client records, whether in a computer or a shoebox.
- Determining attendance at meals. Examples: Clients sign in at front desk; or a volunteer counts the number of empty plates at end of meal.
- Reporting. What internal and external systems, needs and requirements do they have?
- Back-up systems. What do they do when the system breaks down, for example, a key volunteer or staff person is sick. Is this a frequent occurrence?

This can be done formally or informally. The documentation should include names and contact information for key staff and volunteers, and the time and days of the week that the site operates. It should also include what the sites like or dislike about their current processes, and their own ideas for improvements.

ADS assesses the site for the following physical setting and equipment needs:

- Secure location to store equipment
- Computer – speed, memory
- Internet Connectivity – type and speed
- Browser – brand and version
- Analog Phone Line
- Surge protector
- Electrical outlets
- Printer – test quality of barcode output. Verify that the scanner is able to read it.

Implementation Plan

With the information gathered at the site visit, you can now develop a plan for rolling out the new system. The AAA staff should work with each individual site to determine the best method for implementing the scanner system. Following are some key steps to include when developing an implementation plan:

- *Discuss Benefits and Concerns.* The best implementation plan in the world will fail if you don't have willing participants. Meet with the site staff and volunteers and discuss the benefits they will achieve with the new system. Ideally these benefits will address some of the concerns that came up in the site assessment. Some of our benefits include:
 - ✓ Easy access to data
 - ✓ Reduce time spent compiling reports
 - ✓ Track multiple activities and outcomes
 - ✓ No more hard to read handwriting on sign-in sheets
- *Pick a Date.* Some sites prefer to start the program on slower days or during months when there tend to be fewer participants so that they have more time to learn the system and become confident users. Other sites prefer to start the program on their busiest day so they can distribute the cards and explain the new system to many participants at one time.
- *Verify Participants.* An updated participant list will greatly facilitate the implementation of a card system and a new database. The site manager or volunteers should go through any existing participant records and bring the data up to date. Look for possible duplicate names. Edit spelling errors or name and address changes. Delete participants who are no longer active. Time spent updating the list will save headaches when it comes to distributing cards and using the new database.
- *Get It in Writing.* Document the proposed processes that will comprise the new system – the who, what, when, where and how's. The processes may change as the program develops. Keep process documentation updated; this is of great benefit in the event of staff turnover. Following are some of the processes that we define:
 - ✓ Where will scanner be located to record meal activity (entrance to the meal site, front desk, other) and who will scan the cards (participants, volunteer, staff, or a combination)?
 - ✓ How will the site respond to: forgotten cards, eligible and ineligible guests, lost or worn cards that require replacement?
 - ✓ How will new participants be identified and issued cards?
 - ✓ Who will upload data and recharge the battery? Where and when (i.e. daily, weekly, etc.)?
 - ✓ Where will scanner be stored when not in use (in the cradle if secure location, locked in file cabinet)?
 - ✓ Who will input new participant information and edit existing data and how frequently?
 - ✓ Who will review and edit meal activity?

- *Prepare site staff/volunteers.* Schedule one or two training sessions for users on the database and scanner. See the training section of this manual for more detail.
- *Prepare participants.* Educate the participants about the new project by distributing flyers, making announcements, etc. Market the implementation day as a special event -- a party or celebration. This generates excitement from participants for the new project and tends to boost attendance on roll out day.

Training

A critical part of success is having users who are knowledgeable and comfortable using both the scanner and the database. When the implementation plan is developed, you will have a better idea of who needs to be trained on what. Not everyone involved at the site will need to use the database. If a site plans to have a different person operating the scanner each day of the week, then they will all need scanner training.

- *Identify who requires training.* Include a back-up person for each role to ensure coverage in case of illness or staff turnover.
- *Use It or Lose It.* Time training sessions as close to the roll-out date as possible. We've even held training sessions for the scanner the morning of an implementation. The more time between training and implementation increases the likelihood that users won't retain what they've learned and will need to be retrained.
- *Personalize training based on site needs.* Just as each site will have a different implementation plan, sites will have different needs for and responses to training. Are users comfortable with computers and windows based programs? If not, you'll need to spend a little extra time on the basics.
- *Translate to other languages.* Provide training materials in appropriate languages and secure an interpreter for sites if necessary.
- *Offer both Group and Individual Training.* We usually start with the group approach. This allows us to convey the same information to many people. We also provide on-on-one sessions upon request, or if it is evident that a user needs a little more attention.
- *Keep it Simple.* Create training documents for the lowest common denominator – users with little to no experience using technology.

All of ADS's training materials (scanner instructions, database instructions, and FAQ's) are included in the Help Menu of the web database.

Roll-Out

The process for rolling out the scanner project at each site will vary depending on the unique needs of the site. A typical roll-out includes the following:

- *Prepare cards in advance.* Assigning cards in advance has helped facilitate distribution on roll-out day. We assign cards and key-tags based on participant data that sites provide during the site assessment and implementation planning stages. We place the card and key-tag in an envelope and place a label on the front that includes the participant's name, address, date of birth, and corresponding barcode number. Envelopes are filed in alphabetical order.
- *Prepare the Site.* ADS staff arrive at the site early on roll-out day to brief site staff and volunteers on the process. If the site doesn't have a table set up for participants to sign in we set one up. For larger sites (75+ participants), we may set up a few tables and divide them alphabetically by last name (e.g., A-L, M-Z, and new participants)
- *Distribute cards to registered participants.* As participants arrive for the meal, they stop at the registration desk(s) to pick up their card and key-tag. Clients verify that their information on the envelope is correct. If it isn't, staff will note any changes or corrections.
- *Educate participants.* Staff demonstrate how to use the card. Participants receive an informational flyer that explains the benefits of the card. This is done one-on-one as the cards are handed out. It also helps to have the site manager or other respected individual from the site make an announcement during the meal about the new system.
- *Distribute cards to new participants.* Sites that do a good job of promoting the new program may have several new participants show up on roll-out day. In anticipation of this, ADS provides the site with a batch of extra cards. These unassigned cards are placed in envelopes with peel-off labels containing the corresponding bar code numbers. When new participants arrive, the label is peeled off and placed on an intake form. The participant completes the intake form and receives a card and key-tag.
- *Update Database.* Following the meal, site or agency staff enter new intake forms and other edits or corrections into the database.

Other ideas for roll-out include:

- *No Pre-assigned Cards.* Every participant re-registers and then receives a card. This method takes more time to distribute cards as you are collecting an entire intake for each person, rather than just verifying personal information that you already have on file. However, it is a good way to go if you don't have a good participant data from which to assign cards. There is also no extra prep work.
- *Include the card, key-tag and intake form on one piece of paper.* If we were to start the project over tomorrow, we would look for a card vendor who could

supply the cards and forms. No more envelope stuffing. No more double checking to make sure the right card goes to the right person.

- *Mail the cards in advance.* We haven't tried this, but it was suggested by one of the sites. The idea was to combine distribution, education and marketing in one step. We were concerned they would be tossed with the junk mail. It might be a feasible option for some locations, however.

Follow Up

Getting a site up and running with a new system requires a substantial investment of time and energy. The best insurance you can provide for this investment is consistent follow up. Follow up can take several forms: in-person, over the phone, or via e-mail. The type and amount of follow-up will vary depending on the site. Typically, ADS staff assist sites during the first few days of implementation by distributing cards, explaining the program to participants, and helping staff/volunteers learn how to use the new equipment and feel comfortable with the new processes. Some sites need more than a few days of on-site help. Other sites need less.

- *Develop a plan.* Address follow up needs when developing the implementation plan. Ask the sites what they think that they will need. Sites who are well organized and have a committed and consistent group of staff and/or volunteers tend to need less on-site assistance. The estimates may be high or low, but they will help you to plan your time.
- *Observe users.* Watch staff and/or volunteers perform required tasks several times in order to assess their proficiency and determine follow-up needs. Revise follow-up plans as needed.
- *On-line monitoring.* After the site is able to manage the equipment and processes on its own, project staff can monitor the progress and quality of data on-line. Check the database to ensure that the site is uploading data regularly. Check the data to see if it corresponds with normal activity at the site. If things look askew, it's time for a site visit.
- *Be available.* Make sure sites know who to call for help. Have a back-up support person in the event of illness or staff turnover. Respond as quickly as possible to problems. Knowing that they have access to help when they need it gives some sites the confidence to try and do it on their own.
- *Provide on-going training.* Offer optional refresher classes on a regular basis – quarterly, semi-annually, or yearly depending on the need. This helps improve the confidence of some users, brings new volunteers or staff up to speed, and provides a forum in which to update users on new and improved features.

VI. Evaluation

As of March 1, 2001, eighteen nutrition sites (36%) have implemented the Gold Card Scanner Project and the Nutrition Web System. Of the seven non-profit agencies that provide meals, four (58%) are using the system to generate invoices to ADS for services provided. ADS hopes to have the project fully implemented by early 2002. Just as the project itself is ongoing, so is the evaluation piece. This section will touch upon our accomplishments and discuss some of the methods we've employed in evaluating the project (including a few that we've yet to implement).

ADS embarked upon this project in an effort to save time, improve data quality and make life a little easier for everyone involved with the nutrition program -- from program monitors at the AAA to the staff, volunteers and participants at the meal sites. In our efforts to measure improvements in efficiency, accuracy and overall satisfaction, we have used the following evaluation methods:

- Program Monitor Time Study and Analysis
- Pre and Post-implementation Surveys of Agency and Site Staff/Volunteers
- Data Comparison

Program Monitor Time Study and Analysis

Method: The ADS Nutrition Program monitor tracked the time spent and the steps required to process an invoice for an agency. The study was done one time before the scanner project, and once again after the agency was fully implemented. The program monitor documented and compared the number of errors found in both systems. She also contacted the agencies to assess the amount of time spent preparing invoices.

Results: Improved efficiency, accuracy and overall satisfaction of both program monitor and agency staff. The following chart highlights some of the results:

Process	Before Project	After Project	Area of Gain
Invoice Processing Time	42 minutes	6 minutes <i>85% improvement</i>	Efficiency
Invoice Error Rate	1% (18 meals over billed)	No errors	Accuracy
Invoice backup documentation	21 pages	No paper; verify on-line	Efficiency
Verify eligibility for program	Done once per year. Random check of sample participant records during on-site assessment	Immediate access to data	Efficiency Accuracy
Verify achieved outcomes: e.g., attend a specified # of times within a given period.	14-16 hours of agency time once every 3 months to compile data for this outcome.	2 hours of agency time once every 3 months <i>87% improvement</i>	Efficiency

Pre and Post-implementation Surveys

Method: During the initial site assessment, site staff/volunteers complete a survey in which they evaluate the amount of time spent on paperwork and reports. The survey also asks some qualitative questions regarding their ability to obtain data for reports and their satisfaction with the current system. Once the site is on board, the survey is conducted in the following intervals: 2 months, 6 months and one year following implementation. The survey is administered on-line through the web database. The user must complete the survey before going any further into the system.

Results: Improvements in efficiency and overall satisfaction.

- After 2 months 70% of respondents reported that the new system made their jobs easier. At the 6 month measure, this figure increased to 75%.
- Time spent per month compiling reports and other paperwork: Baseline 18 hours per month; at 2 months, 13 hours; and at 6 months, 11 hours. Increase in efficiency of 38%. We expect this number to drop as the project continues; it currently includes sites who must maintain dual systems until all the sites sponsored by their agency are implemented.
- 90% of respondents reported that the system was either very easy or somewhat easy.

Data Comparison

In accordance with NAPIS reporting guidelines, ADS has required nutrition providers to report service utilization data by client since 1996. Agencies typically sent a data file that was either extracted from an internal database or manually compiled. The number of meals reported in the data files never corresponded with the number of meals for which the agency had billed ADS.

Method: We compared the number of meals reported in the NAPIS data files (pre-implementation) with the number of meals billed. We then compared the number of meals recorded by the scanner (post-implementation) with the number of meals billed. We sampled two consecutive months of data for three different agencies.

Results: Improvement in accuracy. The data files had an error rate of 8% and the scanner system had an error rate of .5% as observed in the following charts:

Data Comparison

<i>Old System</i>	Jan-00		Feb-00			
	NAPIS Report	Billed Meals	NAPIS Report	Billed Meals	Difference	Error Rate
Agency A	604	652	518	771	301	21.15%
Agency B	836	839	815	818	6	0.36%
Agency C	1,339	1,371	1,154	1,274	152	5.75%
Total	2,779	2,862	2,487	2,863	459	8.02%

<i>New System</i>	Oct-00		Nov-00			
	Recorded meals	Billed Meals	Recorded meals	Billed Meals	Difference	Error Rate
Agency A	608	616	458	458	8	0.74%
Agency B	929	930	777	777	1	0.06%
Agency C	1,473	1,477	1,342	1,358	20	0.71%
Total	3,010	3,023	2,577	2,593	29	0.52%

The numbers establish that we've made some gains in terms of efficiency and accuracy. What we've heard from both clients and providers confirms this. Following are some comments from the field:

- "I'm beginning to realize what a tremendous time saver this is."
Site Manager
- "Clients seem more willing to complete the information on the intake form knowing that they will get a Gold Card."
Agency Program Director
- "Can our site get the cards soon? Our participants keep asking for them."
Senior Center Director

While the feedback from sites indicates that participants seem to like the new system, we have yet to solicit opinions directly from participants. In the next year we plan to administer a survey to participants in an effort to evaluate how the card is being used and how they feel about using it.

Both ADS and the participating nutrition providers are very pleased with the results of the scanner project. Using the scanner has helped reduce paperwork, save administrative time, and provide better and more timely information on the program. The system is not perfect, however. The human factor plays a significant role in the success of any data collection project, and the data will probably never be perfect. Our success is due in large part to the energetic and enthusiastic staff at the nutrition sites who have been committed to implementing the project.